

Task C21. BOUQUETS

 2 sec.  256 MB

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A flower shop has an unlimited quantity of flowers of N types, each having respectively a_1, a_2, \dots, a_N petals. A corporate client has made M orders at the shop. Each order has the following requirements:

- K different bouquets must be made, each containing the same number of flowers (two bouquets are considered different if there is a difference in the types of flowers used);
- Only flowers having at least L and at most R petals may be used;
- Each bouquet may contain at most one flower of each type.

The florists want to use as few flowers as possible. Help them by writing the program **bouquets** that determines the minimum number of flowers each bouquet can contain for every order so that the given requirements are satisfied.

Input

The first line of the standard input contains the positive integers N and M , representing respectively the number of different types of flowers and the number of orders. The next line contains N positive integers a_1, a_2, \dots, a_N , indicating the number of petals for each type of flower. Each of the following M lines contains three positive integers L , R , and K , describing each order.

Output

For each order, print the requested number of flowers on a separate line. If a given order cannot be fulfilled, output -1 for it.

Constraints

- $1 \leq N \leq 3000$;
- $1 \leq M \leq 10^5$;
- $1 \leq a_i \leq 10^5$;
- $1 \leq L \leq R \leq 10^5$;
- $1 \leq K \leq 10^{900}$.

Subtasks

XVI INTERNATIONAL ADVANCED TOURNAMENT IN INFORMATICS
SHUMEN 2025

Subtask	Points	Required subtasks	N	K	Other constraints
0	0	—	—	—	The sample test.
1	11	0	≤ 15	≤ 250	-
2	13	0 – 1	≤ 50	$\leq 10^{18}$	-
3	15	0 – 2	≤ 100	$\leq 10^{900}$	-
4	19	0 – 3	≤ 1500		$M \leq 10^4$
5	20	0 – 4	≤ 1600		-
6	5	—	≤ 3000	$= 1$	-
7	17	0 – 6		$\leq 10^{900}$	-

The points for a subtask are given only if all tests for it and the required subtasks are passed **successfully**.

Example

Input	Output	Explanation of the example
7 3 3 4 1 1 6 1 2 2 5 3 4 7 3 1 2 5	1 -1 2	<p>For the first order, the flowers of type 1, 2 and 7 can be used (with 3, 4 and 2 petals accordingly). If each bouquet contains one flower, exactly 3 different bouquets can be made.</p> <p>For the second order, the flowers of type 2 and 5 can be used (with 4 and 6 petals accordingly). Thus, it is not possible to make 3 different bouquets.</p> <p>For the third order, a total of 4 types of flowers can be used. If each bouquet contains 2 flowers, at least 5 different bouquets can be made.</p>